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ABSTRACT

Because language delay tends to persist, is predictive of later learning problems, and is closely associated with psychiatric disorders, it is important to identify language delay as early as possible. In this study, language delay at age 2 was investigated in 502 children who attended physicians. Language assessment is not routinely carried out at this age because current screening instruments must be administered by a physician or his staff. For this research a screening test was devised which does not need a professional to administer it. The Language Development Survey (LDS) required the parent to indicate whether the child produced word combinations and to check off, on a list of 250 words, all words produced spontaneously. The criteria for "clear delay" were fewer than 30 words and/or no word combinations at age 2. In the first year of the study, 351 children were surveyed in five different pediatric groups; 14 percent met the clear delay criteria. The range across groups was from 9 to 17 percent, with the highest prevalence in an urban hospital medical clinic. In the second year, 151 children were surveyed in the same hospital medical clinic; 16 percent met the criteria for clear delay. The rate of clear delay was higher in boys than in girls. Total vocabulary size was significantly associated with sex and socioeconomic status, with girls and children in the upper social classes having larger vocabularies. Preliminary attempts to collect validity data on the LDS suggest that it will be useful in future research. (Author/CB)

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Language Delay in 2-Year-Olds

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Abstract

Language delay at age 2 was investigated in 502 children attending pediatricians. Data were collected by parent report on the Language Development Survey (LDS), an instrument developed to assess vocabulary and word combinations at 24 months. The criteria for CLEAR DELAY were fewer than 30 words and/or no word combinations at 2. In Year 1, 351 children were surveyed in five different pediatric groups and 14% met the CLEAR DELAY criteria. The range across groups was from 9% to 17%, with the highest prevalence in an urban hospital medical clinic. In Year 2, 151 chidren were surveyed in the same hospital medical clinic and 16% met the criteria for CLEAR DELAY. The rate of CLEAR DELAY was higher in boys than girls, significantly so in Year 2. Total vocabulary size was significantly associated with sex and SES, with girls and children in the upper social classes having larger vocabularies.

Language Delay in 2-year-old Children

Delaved language is increasingly being identified as one of the major mental health problems in the preschool years (NINCDS 1976; 1979). Language delay is the most common developmental problem found in preschool children (Bax, Hart & Jenkins 1980). Preschool language delay tends to persist for a number of years and is a powerful predictor of later learning problems (Aram & Nation 1980; Silva, McGee, & Williams 1983; Stevenson 1984; Strominger & Bashir 1977). A large proportion of children with early language delay develop reading problems or other forms of learning disability when they enter school, even when children who are retarded, autistic, or neurologically impaired are excluded from consideration (Fundudis, Kolvin, & Garside 1980; Klackenberg 1980; Richman & Graham 1982). Behavioral/psychiatric problems have been found in about 50% of speech and language-delayed children, a rate three times as high as that found in children with normal language (Cantwell, Baker & Mattison 1979; Stevenson & Richman 1978).

Because language delay tends to persist, is predictive of later learning problems, and is closely associated with psychiatric disorder, it is important to identify language delay as early as possible so that timely, appropriate intervention can be provided. It is the contention of this paper that language delay is readily identifiable as early as 24 months of

age. Numerous developmental test norms indicate that a child of 24 months should have about 50 words and some 2-to-3 word combinations (Bzoch & League 1971; Capute & Accardo 1978; Coplan, Gleason, Ryan, Burke, & Williams 1982; Frankenburg & Dodds 1967). Thus, a child who has fewer than 30 productive words and/or produces no word combinations by the age of 2 is manifesting significant language delay. Because language delay at 2 has received scant research attention, we have very little empirical information about the proportion of 2-year-old children showing language delay of this degree.

Some epidemiological data on language delay at 3 have been reported in recent years. Stevenson & Richman (1976) found that 3-to-4% of the 705 3-year-old children participating in an epidemiological survey in London were at least 6 months delayed in their language development. Of the 22 language-delayed children identified, 50% were retarded. Only 4 children had roughly normal cognitive ability in conjunction with significant language delay. Silva (1980) has reported that 8% of his sample of 937 3-year-old children in New Zealand were significantly delayed in either language expression (2%), language comprehension (3%), or both aspects of language (3%). Eighty-five percent of the children delayed in both comprehension and production were retarded or borderline in IQ.

One of the few reports dealing with the identification of language delay at 2 comes from an epidemiological study of 2-year-olds in Bermuda (Hrincr, Goldfarb, Scarr, & McCartney in

press). In a population of 418 children screened, 14% failed a language screening; about 10% of the population were judged to need some form of intervention upon clinical assessment.

Thus, there are few prevalence studies of language delay in children as young as 2. Because language delay in older children shows a strong association with social class (Golden & Burns 1983), the relationship between language delay at 2 and socioeconomic status is of particular interest. There is also a need for a workable and practical method of identifying language-delayed 2-year-olds in the community. Most epidemiological methods are too expensive and elaborate to serve for practical, everyday application. We have chosen to identify language delay at 2 by screening populations of children attending pediatricians. As almost all 2-year-old children receive pediatric care (whether in private practices, HMOs, or hospital primary care clinics), pediatric clients constitute a large and unselected population for language delay screening.

A number of screening tools exist for pediatricians to use in assessing language: the Denver Developmental Screening Test (Frankenburg & Dodds 1967); the Language and Auditory Milestone Scale (Capute and Accardo 1978); Coplan's ELM (Coplan, Gleason, Ryan, Burke, & Williams 1982); and the Receptive-Expressive Emergent Language Scale (REEL) (Bzoch & League 1971). Because administration of all four of these scales requires a physician or staff member, language assessment by pediatricians at 2 is not routinely carried out. Some of these instruments involve

direct testing or observation of the child. However, because 2-year-old children cannot be counted upon to demonstrate their best language skills during a brief pediatric exam, these instruments all rely on parent report to some degree. However, few of the scales require that the parent provide any detailed documentation or specific illustrations of the child's language skills.

Because of the limitations of the existing language screening instruments, it seemed necessary to develop a different approach to language screening. A method was needed which did not require physician time, preferably one which could be carried out quickly and efficiently in the clinic or office waiting room. Parental report was deemed the best means of obtaining quick, reliable, and valid language information at 2. Work by Bates and colleagues has shown that parental report of early language skills can be quite reliable, particularly when a "recognition format" is provided by use of a word checklist (Bates, Bretherton, Shore, and McKnew 1983). The data collection method devised for this research required the parent to be very specific and concrete about the child's language skills, thus guarding against global overestimation of the child's abilities.

In summary, this study was an initial attempt to develop a practical methodology for identifying language delay in 2-year-old children attending a wide SES spectrum of pediatric facilities. In the first year of the study, data were collected in five different pediatric practices, one of which was an urban

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hospital medical clinic. In Year 2, the study was conducted for a second 6-month period in this hospital clinic. The Language Development Survey (LDS) developed for the project was completed by the parent in the waiting room. The LDS combined a vocabulary checklist with inquiries about the child's production of word combinations. It thus provided concrete and detailed information about the size of the child's productive vocabulary and his use of word combinations. These data on lexical and syntactic development were used to determine the prevalence of language delay at 2 and its association with a variety of demographic factors.

Year 1: Method

Settings

In Year 1 of the study, the prevalence of language delay at 2 was studied in five different pediatric settings, chosen to represent a broad SES range, a diversity of health delivery patterns, and some geographical variation. In the two Connecticut settings, data collection was carrried out over a 12-month period. Surveys were collected in a pediatric group in upstate New York and in the Philadelphia Private and Philadelphia Clinic settings for approximately 6 months.

Subjects

The subjects in Year 1 of this research were 351 children in the age range of 22-to-26 months coming for non-emergency pediatric appointments during the data collection period. Office staff members or student volunteers invited parents to complete

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the survey while waiting for their pediatric appointments. While it was not possible to obtain surveys on every 2-year-old seen, there was no systematic or selective bias in subject recruitment. An estimated 50-to-65% of all 2-year-olds seen in the practices during the data collection period were surveyed. The most common reason subjects were not surveyed was time pressure in the pediatrician's office. Fewer than 10 parents declined to participate in the study (less than 3% of the total sample).

The Language Development Survey (LDS)

The Language Development Survey (LDS) used in Year 1 of this research consisted of approximately 250 words common in children's early vocabularies, arranged according to semantic category (see Table 1).

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insert Table 1 about here

The words were taken from existing studies of early lexical development (Nelson, 1973; Rescorla, 1980). Verbal instructions were given as a supplement to the written instructions on the LDS: the parent was asked to check off all the words on the list which her child produced spontaneously. Instructions stressed that words comprehended only and words imitated only should not be checked. However, parents were told that words with "baby talk" pronunciation or somewhat broad meanings ("shoe" for slipper) should be included. If the child was learning a foreign

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language instead of English (or was being raised bilingually), the parent was asked to check off English equivalents of the child's words. If the parent informant did not speak or read English, no survey was collected. In addition to providing vocabulary information, the LDS also supplied information about the child's developing syntax. The parent was asked to indicate whether the child produced word combinations. If the child was combining words, the parent was instructed to write down examples of the child's sentences. Finally, the reverse side of the LDS requested identifying and demographic information. The parent left the completed form in the pediatrician's office, to be collected by the research staff.

Data analysis

The demographic and background variables analyzed included sex, birth position, number of siblings, and prematurity status of the child; educational level, employment status, marital status, and occupational level of each parent; Hollingshead four-factor social status score for the family (Hollingshead, 1975); parental concern about child's language; primary language spoken in the home; and child's attendance in day care. Because some parents did not complete all the demographic and background information items, sample size for some of these variables was reduced.

The LDS vocabulary words were coded as present (score =1) or absent (score=0) in the child's productive lexicon. Means were computed both within each semantic category and across the

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whole checklist. Presence or absence of word combinations was scored and the mean length of the combinations listed was calculated. This "mean length of combinations" variable is obviously not equivalent to the child's mean length of utterance or MLU (Brown 1973), because it was not based on a taped speech sample.

We have adopted criteria for CLEAR language delay of fewer than 30 words of productive vocabulary and/or no word combinations at the age of 2. The Denver Developmental Screening Test (Frankenburg & Dodds 1967) indicates that between 75% and 90% of 2-year-old children have 2-word combinations. Capute and Accardo (1978) place 2-word combinations at 21 months and 50 vocabulary words at 24 months. Coplan's ELM (Coplan, Gleason, Ryan, Burke, & Williams 1982) found that 90% of children had 2 word sentences at 23.2 months and 50 words at 25.6 months. The REEL (Bzoch & League 1971) places 2 word combinations at 20-to-22 months and 10-to-20 words at 18-to-20 months. We chose our CLEAR DELAY criteria of fewer than 30 words and/or no combinations at 2 so that any child meeting them would be most unlikely to manifest age-adequate language on any of the available language tests for young children. By using dual criteria, it was possible to catch children who were delayed in either vocabulary or syntax, as well as children delayed in both these aspects of language.

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Year 1: Results

Demographic characteristics of the pediatric samples

The five pediatric groups provided a broad sample of children receiving medical care in public and private urban settings (see Table 2).

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insert Table 2 about here

The data on Hollingshead social status indicate that the most privileged pediatric group was the New Haven HMO (Group B), with 88% of the families in social classes I and II. In New Haven Private (Group A) and Philadelphia Private (Group D), about two-thirds of the families were in the top two social classes. New York Private (Group C) had no social class I families. Finally, the Philadelphia Clinic population consisted primarily of families in social class V. The majority of clients in the Philadelphia clinic were black, while the other four practices served mainly white families ; however, racial information was not obtained on the survey. The percentage of foreign families was highest in the New Haven HMO (12%) and New York Private (9%); in the other three practices, fewer than 5% of the families were foreign.

Almost all the children in the four private settings came from intact two-parent families. In contrast, only 29% of the children in the Philadelphia Clinic lived with both parents.

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Similarly, the Philadelphia Clinic sample was the only one showing a low rate of employment of fathers. Maternal employment ranged widely across the five groups: the lowest rate of maternal employment was in the Phildelphia Clinic group, which consisted primarily of women on public assistance. The highest rate of maternal employment was in the New Haven HMO group, where many of the fathers were graduate students. The majority of parents in the two New Haven groups and in Philadelphia Private had college or graduate degrees. In the New York Private and Phildelphia Clinic groups, the modal pattern was a high school education for both parents.

The five pediatric samples contained approximately equal proportions of girls and boys. The percentage of first-born children in the sample was about 50% in the five groups. The New Haven HMO and Philadelphia Clinic had the highest proportions of first-born children (62% and 58% vs. 46%, 48%, and 50%). Prematurity information was not collected in the New Haven settings, but the other three groups showed a wide range in the proportion of premature children (14% in New York Private and Philadelphia Clinic vs. 3% in Philadelphia Private).

In the Philadelphia Clinic and New York Private groups, about 75% of the children were cared for full-time by their mothers. In contrast, substantial numbers of children in the other three settings were receiving day care or substitute care; New Haven HMO had the highest day care rate (61%), which is consistent with the high level of maternal employment in that

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group.

Total vocabulary results

Mean total vocabulary size was calculated for each of the five pediatric groups and for the total pediatric sample. As can be seen in Table 3, the highest total vocabulary size was found in the the New Haven HMO group (168 words).

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insert Table 3 about here

Three of the pediatric groups had mean total vocabulary size of 150-to-160. Finally, the Philadelphia Clinic group had a mean total vocabulary size of 127. While the overall analysis of variance of total vocabulary size across pediatric groups yielded a significant result ($F=4.62$, $df=4$, $p. < .05$), the only significant pair-wise comparison was between the two most extreme groups (New Haven HMO vs. Philadelphia Clinic).

Inspection of Table 3 reveals that the modal vocabulary size in the Philadelphia Clinic was between 100 and 150 words. In contrast, the modal vocabulary size in the other four pediatric groups was in the 200-to-300 word range. However, the five pediatric groups did not differ sharply in the percentage of children with fewer than 50 words. This percentage ranged from 13% to 15% across the five groups.

Analysis of variance was used to examine the relationship between total vocabulary size, sex of child, and SES of the family in the combined pediatric sample. Girls had larger

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vocabularies than boys (169 vs. 132 words: F= 20.10, df=1, 299, p < .0001). SES also showed a highly significant association with total vocabulary size (F=7.83, df=4, 299, p < .0001), with children in social classes I and II showing significantly larger vocabularies than children in social classes III, IV, and V (178 and 162 vs. 133, 119, and 128), according to Newman-Keuls tests.

Word combinations data across pediatric groups

The mean length of combinations for the combined pediatric groups was 3.50. Although the one-way analysis of variance across the five groups was significant (F=2.61, df=4, p <0.05), the only significant pair-wise difference was that between the two most extreme groups (New Haven Private vs. New York Private).

Two-way analysis of variance using sex and SES as factors indicated significant effects for both variables, but no significant interaction. Parallel to the total vocabulary data, girls were more advanced in mean length of combinations (3.81 vs. 3.23: F=12.84, df=1, 239, p < .001). There was no consistent or predictable pattern to the SES differences, although the overall F value was significant (F=3.21, df=4, 239, p < .05).

Prevalence of language delay

The percentage of children manifesting CLEAR delay was calculated, using our criteria of fewer than 30 words and/or no word combinations at 2. As can be seen in Table 3, the percentage of language delayed children ranged from 9% in New

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York Private to 17% in Philadelphia Clinic, with an overall rate of language delay of 14%. The percentage of children showing language delay was not significantly related to either pediatric group or SES, as determined by chi-square analysis. However, the highest rate of language delay was found in the Philadelphia Clinic sample (17%); this was not surprising, given the well-documented association between economic disadvantage and developmental delays of all types. On the contrary, it is surprising that the difference in rate of delay between the most disadvantaged population and the upper middle class populations was not greater.

Of the 48 CLEAR DELAY children, 65% were boys. However, the proportion of boys showing CLEAR delay status (17%) was not significantly different than the 10% rate of CLEAR delay for girls. There was no significant association between CLEAR DELAY status and child's birth position (first-borns 12% vs. later-borns 16%). Language delay was not significantly related to daycare/home care status. The rate of language delay in the children born premature was 25%, as opposed to 13% in children born at term, although the chi-square was not significant. Of the total 48 CLEAR DELAY children, seven were from foreign families. Thus, approximately one-third of the foreign children met the CLEAR DELAY criteria, compared to 12% of the children in families speaking only English ($X2=6.54$, $df=1$, $p < .05$).

Exactly half of the 48 language-delayed children had fewer than 30 words AND they did not produce word combinations.

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Children who had more than 30 vocabulary words but no word combinations comprised 35% of the language-delayed group. Finally, only 15% of the language-delayed children had fewer than 30 words of productive vocabulary but some word combinations. It is to be expected that the number of children in this last group would be small, as research indicates that children usually do not start combining words until they have about 50 productive vocabulary items (Nelson 1973; Rescorla 1980).

Parents of children identified as showing CLEAR delay were four times more likely to be concerned about their child's language development than parents of children identified as not delayed (55% vs. 12%, $X2=49.15$, $df=1$, $p < .001$). Seventeen percent of parents in the CLEAR DELAY group and 18% of parents in the NORMAL group did not respond to the question concerning parental concern about child's language.

Year 2: Method

Procedure

In Year 2 of the research, data were collected for a second 6-month period in the Philadelphia Clinic, a primary care center serving primarily inner-city, minority families. Surveys were obtained on 151 children, approximately 75% of the 22-to-26 month-olds seen during the time period. Fewer than 10% of parents approached declined to complete the survey.

In Year 2 of the study, about 100 words were added to the LDS, producing a checklist of about 340 words. The words added

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were primarily lower frequency words in the semantic categories of household words, toys, clothing, and vehicles. The data collection procedures were similar to those used in Year 1, except that the student volunteers in Year 2 received somewhat more training and monitoring than had been possible in Year 1.

Year 2: Results

Total vocabulary results

Mean total vocabulary size in the Philadelphia Clinic was higher in Year 2 than Year 1 (150.70 vs. 127.67). This significant increase was not due to the longer checklist, as it was still present when the "new" words were deleted from the Year 2 list and the mean re-calculated. The Year 2 vs. Year 1 difference may be due to the better training which the student volunteers received in the second year of the study, leading to collection of more complete vocabulary information from the parent. However, the mean length of combinations in Year 2 in the Clinic was very similar to the mean in Year 1 (3.54 vs. 3.44).

Prevalence of language delay

A total of 24 children in Year 2 met the CLEAR DELAY criteria of fewer than 30 words and/or no combinations, equivalent to 16% of the sample of 151. This is highly consistent with the Clinic CLEAR DELAY rate of 17% in Year 1. As in Year 1, the majority of the CLEAR DELAY children were boys (71%). The sex difference for CLEAR DELAY status was signficant in Year 2 ($X2=6.13$, $df=1$, $p < .05$). Of the 24 CLEAR DELAY

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children, 27% were prematures, contrasted with 16% prematures in the total sample. However, this difference was not significant.

Of the 24 CLEAR DELAY children, 50% had fewer than 30 words AND no combinations. This is identical to the proportion in Year 1 meeting both criteria. Forty-two percent of the CLEAR DELAY children in Year 2 had more than 30 words but no combinations. Finally, 8% of the CLEAR DELAY children in Year 2 had some combinations but fewer than 30 words, about half the proportion found in Year 1.

Validation of the LDS

In an initial attempt to validate the Language Development Survey as a screening tool for language delay at 2, we attempted to see all 24 CLEAR DELAY children identified in Year 2 for clinical assessment. Eleven children could not be seen. Four of these lived in homes with no telephone and parents did not reply to letters of inquiry mailed to them. The other seven parents were contacted by phone, but an assessment session could not be arranged. It was not possible to obtain any further information about 27% of these 11 children, but information was obtained on the other 73% strongly supporting a diagnosis of significant language delay. Such confirmatory evidence was secured from hospital records, conversations with the child's pediatrician, or phone contact with the parent. For example, information was obtained on one child who had a history of meningitis, hydrocephalus, and mental retardation; another child was being evaluated in the Clinic for seizures and mental retardation; two

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were twins boys, born 4 weeks premature, whose mother reported over the telephone that they each had fewer than 10 words of productive vocabulary.

A total of 13 out of the 24 CLEAR DELAY children were seen for assessment. The Bayley Scales of Infant Development and the Reynell Language Comprehension and Verbal Expression Scales were administered. Ten children, or 77%, were found to have delays of 6 months or more in language when tested: 6 had delays in both comprehension and production, 3 had only expressive delay, and 1 had a severe receptive delay and marginal productive language. Only 3 of the 10 language-delayed children had Bayley scores of 80 or above; the other 7 language-delayed children had Bayley scores ranging from 50 to 74.

Three of the 13 CLEAR DELAY children (23%) were not significantly language-delayed on assessment. All three had met only one of the two CLEAR DELAY criteria when surveyed. For two children, assessment could not be arranged until 2 1/2 months after the survey was collected. During this interval, one child began combining and the other added many words to his vocabulary. Thus, both were normal when tested. The third child was the only case of clearly erroneous classification detected. The mother had listed that the child had more than 150 words, but then checked "no" for combinations. At the assessment session, she recognized her mistake and reported that her child had been using sentences for several months.

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As part of our preliminary validation efforts, a small number of children identified as NORMAL on the LDS were also seen for assessment. Six of the 7 children seen (86%) had expressive language scores within 3 months of their chronological age and Bayley scores of 90 or above. The seventh child had clear behavior problems, a Bayley score of 80, an 8-month delay in receptive language, and a 5-month delay in expressive language.

Discussion

This paper reports data on a research program to identify and analyze language delay at 2. We have devised a method for collecting language survey data from pediatric populations which is quick and efficient. We have gathered data on 502 children drawn from five pediatric settings which differ widely in demographic characteristics and mode of health care delivery. Our methodology has been successfully employed in both private and clinic settings, using both middle class and lower class parent informants. The number of parents declining to complete the LDS has been small. Many parents became quite engrossed in completing the checklist. They were selective in checking off words, clearly indicating on the checklist words their child did not say, as well as words produced.

About 10% of 2-year-olds met our criteria for CLEAR language delay in even the most advantaged pediatric populations. This rate is substantially higher than the language delay rate of 3-to-5% typically reported for 3-year-olds (Silva

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1980; Stevenson & Richman 1976). This is to be expected, as it is surely the case that some percentage of children showing language delay at 2 will have developed normal language by 3. However, few data currently exist indicating the magnitude of this percentage.

Our data indicate that the prevalence of language delay was somewhat higher in the disadvantaged, inner-city pediatric setting than in the private practices (17% in Year 1 and 16% in Year 2). However, the substantial rates of CLEAR DELAY found in the private practices indicate that language delay at 2 is by no means a problem confined to disadvantaged children.

The similarity of rate of delay found across the four private settings and the nearly identical rates of delay obtained in the Clinic in Year 1 and Year 2 are evidence of the reliability of our methodology. The data we have collected thus far suggest that future replications of the procedure will result in CLEAR DELAY rates in the range of 10-to-16%.

Boys had a higher rate of language delay than girls in both Year 1 and Year 2, although the difference was only significant in Year 2. Language delay showed a clear but non-significant tendency to be associated with premature status in both Year 1 and Year 2. Finally, sex was significantly related to total vocabulary size in both years of the study. The consistency of these findings across replications demonstrates that the procedure we have developed yields robust and stable results.

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Our preliminary attempts to collect validity data on the LDS suggests that we will be able to demonstrate good sensitivity and specificity for the instrument in future research. More than 70% of the children identified as CLEAR DELAY on the LDS appeared to be significantly language-delayed, as documented by either direct clinical assessment or by confirmatory report from pediatricians or parents. The majority of language-delayed children were showing at least mild mental retardation. In contrast, none of the small number of children NORMAL on the LDS who were assessed had significant language delay or mental retardation.

In conclusion, we have developed a methodology to identify language-delayed 2-year-olds in pediatric populations. Such children are known to be seriously at risk for continuing language problems, learning disabilities, and psychiatric/behavioral disorder. The data we have collected indicate that language-delayed 2-year-olds can be found in all SES groups. These children manifest a variety of syndromes and the etiologies of their language delay are multiple. The research reported here is a beginning step in identifying these children. In future research, we plan to replicate our prevalence findings, delineate the various 2-year language delay syndromes, and investigate the persistence of 2-year language delay.

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Footnotes

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Table 1

Year 1: Language Development Survey

Please check off each word your child says. Don't include words your child can understand but not say. It's ok to count words that aren't pronounced clearly. If your child speaks a foreign language, please check off English versions of the words he uses.

FOOD	ANIMALS	ACTIONS	HOUSEHOLD	PEOPLE	OUTDOOR	MODIFIERS	OTHER
juice	cow	give	clock	mommy	snow	cold	hello
milk	bee	show	light	daddy	flower	bad	byebye
cookie	bug	bring	blanket	boy	moon	big	nightnight
water	donkey	look	chair	girl	house	good	no
toast	frog	kiss	door	man	rock	nice	on
apple	goose	rock	bed	lady	flag	hot	yes
cake	monkey	feed	crib	grandma	tree	this	me
banana	pig	sing	pillow	grandpa	star	that	off
drink	puppy	dance	telephone	own name	sun	dirty	shut up
bread	tiger	push	washer	auntie	sky	yucky	booboo
butter	turkey	eat	drawer	uncle		pretty	where
cheese	turtle	walk	table	baby	PLACES	sticky	curse words
egg	elephant	cough	bottle	pet name	park	stinky	what
peas	bunny	tickle	cup		pool	allgone	
lollipop	chicken	dinner	spoon	CLOTHES	beach	wet	
candy	fish	lunch	glass	coat	school		
crackers	snake	breakfast	knife	shoes	porch	SOUNDS	PLEASE LIST ANY
coffee	dog	go	fork	hat	store	choochoo	OTHER WORDS
food	cat	come	dish	socks	church	boom	YOUR CHILD
gum	duck	up	plate	boots	library	zoom	USES:
meat	horse	down		pajamas		moo	
cheerios	bear	nice	PERSONAL	belt	VEHICLES	quack	_____
noodles	bird	get	pencil	nightgown	car	meow	_____
nut		wash	key	bib	bike	woof	_____
peach	BODY PARTS	brush	pen	pants	truck	ticktock	_____
pickle	mouth	comb	paper	sweater	boat	yumyum	_____
hot dog	eye	clap	watch	tights	train		
hamburger	arm	see	tissue	slippers	plane		
pizza	toe	stop	scissors	shirt	bus		
soda	leg	throw	pocketbook		wagon		
spaghetti	knee	peekaboo	money		helicopter		
.	belly button	pattycake					
TOYS	penis	bath					
doll	teeth	peepee					
book	hair	doodoo					
ball	ear	nap					
teddy bear	vagina	so big					
blocks	thumb	outside					
swing	ankle	hug					
.		ride					
.		love					

DOES YOUR CHILD COMBINE 2 WORDS? ("more cookie," "car byebye")

YES _____ NO _____

PLEASE LIST BELOW SOME OF YOUR CHILD'S SENTENCES:

_____ _____

_____

_____

_____

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Table 2

Year 1: Demographic Characteristics of Pediatric Samples

	Pediatric Samples				
	A	B	C	D	E
SES status (N)	70	56	22	26	126
I	47%	68%	0%	56%	2%
II	21%	20%	45%	23%	13%
III	24%	9%	18%	19%	12%
IV	4%	2%	18%	12%	10%
V	3%	2%	18%	0%	63%
Family type (N)	73	59	23	29	151
Two-parent	95%	93%	83%	90%	38%
One-parent	5%	7%	17%	10%	62%
Mother's Employment (N)	72	58	22	30	137
Unemployed	54%	41%	64%	53%	82%
Part-time	21%	24%	18%	13%	7%
Full-time	25%	34%	18%	33%	11%
Father's Employment (N)	73	55	21	29	95
Unemployed	4%	13%	5%	10%	41%
Part-time	4%	7%	0%	3%	7%
Full-time	92%	80%	95%	86%	52%
Mother's Education (N)	73	58	22	30	131
Less than H.S. grad.	4%	2%	18%	0%	22%
H.S. grad.	21%	12%	50%	30%	60%
Some post-H.S.	15%	10%	18%	23%	10%
College grad.	33%	47%	9%	23%	7%
Graduate degree	27%	29%	5%	23%	2%
Father's Education (N)	73	58	22	30	137
Less than H.S. grad.	7%	0%	17%	8%	18%
H.S. grad.	18%	7%	56%	22%	60%
Some post-H.S.	14%	7%	17%	11%	10%
College grad.	23%	16%	11%	22%	12%
Graduate degree	38%	70%	0%	37%	0%

A: New Haven Private
B: New Haven HMO
C: New York Private
D: Philadelphia Private
E: Philadelphia Clinic

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Table 3

Year 1: Language Results Across Pediatric Samples

	Pediatric Samples				
	A	B	C	D	E
Mean Vocabulary Size	157.64	168.53	160.48	150.30	127.67
Distribution of Total Vocabulary Size					
<50 words	15%	16%	13%	13%	14%
50-99 words	12%	8%	9%	13%	18%
100-149 words	15%	8%	26%	20%	31%
150-199 words	25%	19%	4%	20%	22%
200-299 words	26%	45%	48%	33%	15%
>300 words	7%	3%	0%	0%	0%
Percentage of CLEAR language delay	10%	15%	9%	10%	17%
Mean length of combinations given	3.44	3.96	3.04	3.61	3.35

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